

The Drinking Water Quality Management Standard (DWQMS) is a 'Made-in-Ontario' management system standard developed specifically by the drinking water sector for municipal residential drinking water systems.

The DWQMS approach emphasizes the importance of:

- Proactive and preventative rather than strictly reactive management strategies to identify and manage risks to public health;
- The establishment and documentation of management procedures;
- Meeting the management procedures; and
- Continuous improvement of the management system.

Did you know?

If you have multiple sources of water taking for your Municipal Drinking Water System, you may be able combine them under a single Permit to Take Water (PTTW). If you currently have more than one PTTW and they are part of an interrelated water supply system, consider combining them into a single PTTW when they are due for renewal.



Many municipalities are already reporting benefits from the development and implementation of their quality management system. As we approach the end of our transition to the Municipal Drinking Water Licensing Program, all municipal drinking water systems will have an established quality management system in place.

Your feedback is vital to informing the development of future program improvements. Do you have a story you'd like to share? How has quality management helped to change the way your drinking water system is operated? Please send your stories and feedback to mdwlp@ontario.ca.

This bulletin contains program updates for municipal drinking water system owners and operators. If there is a topic you would like to see covered in a future edition, or if you have questions about any of the topics covered in this issue, please contact the Approvals & Licensing Section of the Safe Drinking Water Branch (Ministry of the Environment) at mdwlp@ontario.ca.

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Minor Modifications & Repairs

Your Drinking Water Works Permit (DWWP) focuses on the physical and technical capabilities of your drinking water system. It provides you with the authority to construct and alter your system. With the exception of repair, maintenance, or any modification that is exempt from the approval requirements of the Safe Drinking Water Act (SDWA), all alterations to your drinking water system will either be pre-authorized in your DWWP

or will require an amendment to your DWWP. If you are planning to complete work and are not clear on which category it falls under, please contact the Approvals & Licensing Section of the Safe Drinking Water Branch (Ministry of the Environment) at mdwlp@ontario.ca.



Repair and Maintenance:

Generally, repair and maintenance operations will involve replacing or repairing damaged equipment that forms a part of your drinking water system. Repair and maintenance can also include regular, routine actions that are performed to keep the equipment in working order or performed to prevent future problems with the equipment. The SDWA does not require you to use a specific form to maintain a record of modifications to your system that are considered repair and maintenance.

Repair and maintenance will generally include any work that does not result in an alteration of your drinking water system.

The SDWA defines alteration to include the following:

1. an extension of the system,
2. a replacement of part of the system,
3. a fragmentation of the system, and
4. taking all or part of the system permanently out of service.

Example of Repair and Maintenance:

- Replacing a defective valve.
- Changing a short piece of AC pipe to PVC pipe of the same size.

While the definition of an alteration includes the concept of replacement, it does not include replacements made for the purposes of repair and maintenance. The distinction between a replacement and repair normally lies in the purpose of the work to be performed. If the work is being completed to improve reliability of a component or fix an existing issue, it is generally considered repair and maintenance. If the scope of the work goes beyond putting something back to the same state that existed at installation, it is likely a replacement.

Minor Modifications:

Many minor modifications are pre-authorized in Schedule B of your DWWP. If they are included in your DWWP and are **not** performed as part of regular maintenance or repair, the following examples may be considered a minor modification. Note: you should refer to your DWWP for a complete list of components and the conditions associated with making a minor modification to your drinking water system.



Minor Modifications & Repairs *(continued)*

Examples of a minor modification:

1. Modifying or replacing a raw water treatment process or treated water pump;
2. Replacing a raw water treatment process or treated water piping within the treatment subsystem;
3. Modifying or replacing a chemical metering or chemical handling pump;
4. Modifying or replacing valves;
5. Modifying or replacing instrumentation and controls;
6. Modifying or replacing cathodic corrosion protection;
7. Modifying or replacing spill containment works.

Example of a Minor Modification:

- Replacing a chlorine pump with one that has a slightly higher capacity, while maintaining the amount of chlorine being delivered.

All minor modifications to your drinking water system should be recorded in [*Form 2 – Record of Minor Modifications or Replacements to the Drinking Water System*](#).

Exempt from Approval Requirements:

Some alterations are exempt from the approval requirements of the Safe Drinking Water Act. Detailed information about exemptions and exemption criteria can be found in O. Reg. 170/03. The SDWA does not require you to use a specific form to maintain a record of alterations to your system that are exempt from approval requirements.

Example of an Exemption:

- Adding a new service connection is exempt from the approval requirements of the SDWA, and the portion of the service pipe that is on private property is considered plumbing.



Generally, exemptions will include:

1. The establishment, alteration of or a change to a service pipe;
2. The establishment or alteration of or a change in an appurtenance* of a watermain, if the appurtenance does not disrupt the operation of the drinking water system that the watermain is part of;
3. The relining of a watermain, if the new lining does not disrupt the operation of the drinking water system that the watermain is part of;
4. The replacement of an existing watermain with a new watermain that has similar dimensions and performance criteria and that is in the same or approximately the same location, if the existing watermain was established or altered in accordance with an approval granted by a Director.

Other Alterations:

Alterations that are not pre-authorized in your DWWP will generally require you to submit an application to amend your DWWP. Application forms are available on the Drinking Water Ontario website at www.ontario.ca/drinkingwater.

* **appurtenance** includes a valve, valve chamber, hydrant, hydrant lead, flow meter, curb stop, maintenance access point, personnel access opening or other minor accessory part of a watermain (O. Reg., 170/03 s.1(1)).

More information:

Additional information about DWWP amendments can be found in the publication titled: [*Guide for Applying for DWWP Amendments, Licence Amendments, Licence Renewals & New System Applications – Municipal Drinking Water Systems*](#).

Creating a Record of System Alterations

When you alter your drinking water system under a condition that is pre-authorized in Schedule B of your DWWP, a record of the alteration should be created before any work takes place. Your DWWP outlines the specific conditions under which each alteration can be made. You are not required to submit the forms to the ministry, but you should keep them for a period of 10 years and have them readily available for an inspector to review.



Form 1 – Record of Watermains Authorized as a Future Alteration

Subject to certain conditions, your DWWP allows you to modify, replace or extend a watermain within the distribution system. For alterations of this type, you should complete [Form 1](#) before the alteration takes place.

Form 2 – Record of Minor Modification or Replacements to the Drinking Water System

Your DWWP outlines several components that can be altered and/or replaced without preparing an application to amend your DWWP. If you make a minor modification of your system that is not performed as part of regular maintenance or repair, you should complete a [Form 2](#) before the modification takes place.

Form 3 – Record of Addition, Modification or Replacement of Equipment Discharging a Contaminant of Concern to the Atmosphere

Some components of your drinking water system will produce emissions to the atmosphere. Your DWWP outlines several components that may be added, modified or replaced. Your DWWP also outlines certain conditions under which you can alter the rate or manner of a discharge of a compound of concern to the atmosphere. For alterations of this type, you should complete [Form 3](#) before the alteration takes place.

Some alterations will require the description of a drinking water system component in Schedule A of your DWWP to be updated. If this is the case, you should also complete and submit the [Director Notification Form](#) to the Ministry of the Environment. This form is used to notify of the Director of the required change, and should be submitted within 30 days of completion or placing into service.

Forms for recording alterations, for submitting a notification to the Director, and for submitting an application to amend your DWWP are all available through Drinking Water Ontario at www.ontario.ca/drinkingwater.

Walkerton Clean Water Centre

The Walkerton Clean Water Centre is a world-class institute dedicated to ensuring that training and education about drinking water quality is available and accessible to owners and operators of Ontario's drinking water systems. In addition to mandatory and specialized training, the Centre also offers education on topics specific to municipal drinking water systems, including:

- The Drinking Water Quality Management Standard
- Risk Assessment and Emergency Preparedness
- Internal Auditing for the Drinking Water Quality Management Standard
- The Safe Drinking Water Act and Related Regulations
- Standard of Care Training – Safe Drinking Water Act



For additional information about any of the programs offered by the Walkerton Clean Water Centre, please visit their website at www.wcwc.ca or contact them at 1-866-515-0550.

Identifying & Managing Risks to Drinking Water

Elements seven and eight of the DWQMS require that you complete a risk assessment for your drinking water system. These risks and the way they are managed should be documented in the operational plan for your system.

An effective risk assessment will identify a number of different potential hazards and the control measures that are in place to address them. These hazards could be biological (e.g., pathogens), chemical (e.g., naturally occurring heavy metals), physical (e.g., sediment), or radiological (e.g., radon).



In your risk assessment, the likelihood of a hazardous event should be evaluated. These hazardous events can be natural or technological in origin, or result from human activities. Natural events include floods, ice storms, drought and spring run-off. Technological events could include equipment failure or power outage. Human activities include vandalism, terrorism, chemical spills and construction accidents. All potential hazards should be identified, even if there are control measures in place to mitigate the risk or impact of the potential event.



The examples below have been developed for the purpose of explaining concepts. The control measures identified should not be taken as suggested or required by the ministry. Additional information about the risk assessment process can be found in the publication: [*Implementing Quality Management: a Guide for Ontario's Drinking Water Systems*](#).

Examples of Risks and Control Measures:

1. A recent heavy storm has caused a nearby community to discharge improperly treated septic system effluent into lake near your water treatment plant intake. This discharge presents a biological contamination hazard to the source water. To mitigate this risk, your drinking water system controls microbiological contamination by chemically assisted filtration and disinfection.
2. A train derailment has occurred in close proximity to a lake that is the primary source of drinking water for your system, which presents a chemical contamination hazard. While some contaminants may be removed by existing treatment processes in your drinking water system, your response procedures for such an event requires you to assume that there is no control until the contaminant has been identified. Your emergency procedures mitigate this risk by detailing the necessary precautions that should be taken in such an event.
3. An intake pipe has broken and become blocked by sediment and other debris, creating the potential for loss of supply, low pressures and infiltration into the distribution system. You have reduced the likelihood of such an event through regular inspection and maintenance of your intake pipes. This risk is further reduced through the redundancy provided by additional intake pipes and the response steps outlined in your emergency procedures.
4. An unusually fast spring thaw has caused increased run-off into a lake that is a primary source of drinking water for your system. This run-off has resulted in an increase in the concentration of naturally occurring uranium in the lake. Existing treatment processes in your drinking water system mitigate this risk, and you have developed processes for monitoring and responding to high levels of this element.

Accreditation: How to Prepare for an On-Site Verification Audit

The Safe Drinking Water Act requires that an accredited Operating Authority is in charge of your municipal drinking water system at all times. This accreditation recognizes that the Quality Management System (QMS) for your drinking water system meets the requirements of the DQWMS.



The on-site verification audit is an essential part of the accreditation process. It allows the auditor to assess conformity with elements of the DWQMS and to verify that your QMS is being used as documented in your operational plan.

When the auditor is on-site, they will be looking for evidence to demonstrate that your QMS conforms to the DWQMS and that it is effective in achieving its objectives. Without adequate information or evidence, it is likely that an auditor will identify a non-conformance.

There are several things that you should prepare in advance of your on-site verification audit:

1. A management review and full internal audit of your QMS must be completed and documented. This documentation should be available for the auditor to review during the on-site verification audit.
2. Records and other information should be made readily available for the auditor. Specifically, the auditor will be looking for information that demonstrates conformity to the requirements and effective operation of the QMS. A minimum of three months of records should be available.
3. All staff (including top management) should be prepared and available to be interviewed by the auditor during the on-site verification audit.
4. Space should be arranged for the auditor to work.
5. A guide (or guides) should be assigned to assist the auditor in navigating your facility and locating the required information.
6. Arrangements should be made to hold an opening and closing meeting with the auditor.

For additional information about the material you should prepare in advance of an audit, please contact your account representative at the Canadian General Standards Board (CGSB) or contact the CGSB Accreditation Program team at: OE-OA@tpsgc-pwgsc.gc.ca.

General Overview of the Accreditation Process: Full Scope Accreditation

